SiS ACTIVE

WHAT ARE STOP START SYSTEMS?

Vehicles with Stop Start (SS) systems are often referred to as mild or micro-hybrids. They have been developed to improve vehicle fuel efficiency and reduce CO_2 emissions to satisfy global carbon emission targets.

VEHICLES USING STOP START TECHNOLOGY

The number of vehicles incorporating Stop Start systems is growing rapidly. By 2015 it is estimated that 70% of cars driven in Europe will feature Stop Start technology and globally the market is expected to exceed 35 million Stop Start batteries.

Stop Start vehicles offer 5 to 10% reductions in both fuel consumption and carbon emissions and compared with Electric and Hybrid vehicles, have relatively low development costs. Leading manufacturers including Audi, BMW, Mazda, Nissan, Subaru, Toyota and Volkswagen have already introduced vehicles featuring Stop Start technology into Australia and this list is growing on a monthly basis.

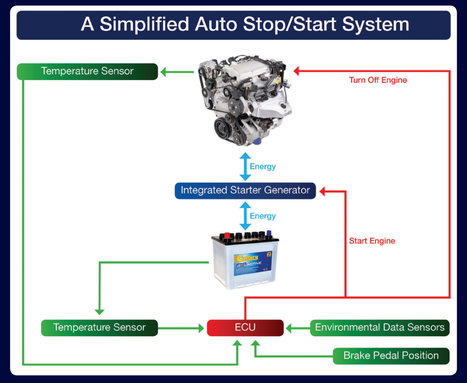
HOW DO STOP START SYSTEMS WORK?

Basic Stop Start systems work by shutting off the engine whilst the vehicle is stationary. When the brake pedal is released or the accelerator depressed, the engine quickly re-starts enabling the vehicle to be driven.

In more advance Stop Start systems, the vehicle may also incorporate regenerative braking or engine power assistance technology. This technology has the ability to switch off the engine when the vehicle is coasting or braking as well as whilst stationary.

Shutting off the engine eliminates the amount of fuel that would otherwise have been used, reducing both vehicle emissions and fuel consumption.

A Simplified Auto Stop/Start System



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IDENTIFYING VEHICLES FITTED WITH STOP START SYSTEMS

Stop Start technology can be incorporated into both petrol and diesel vehicles with a manual or automatic powertrain. It may not be possible to identify whether a vehicle incorporates Stop Start technology, by lifting the bonnet, as manufacturers will not always promote this technology on engine components. Some vehicle manufacturers include a device on the dash board which enables the Stop Start system to be deactivated as required.

To avoid fitting an incorrect or conventional battery into a Stop Start vehicle, refer to the manufacturer's handbook or visit **www.centurybatteries.com.au**

BATTERY REPLACEMENT

When replacing the battery in a Stop Start vehicle, ensure that the battery used is a like for like replacement. Only replace EFB with EFB and AGM with AGM Stop Start compatible batteries. Avoid fitting a conventional battery in a vehicle with Stop Start technology as this may damage the vehicles electrical system and lead to premature battery failure.

In Stop Start vehicles the battery is vital to maximising the environmental benefits of these technologies. Battery replacement in Stop Start vehicles should be conducted in conjunction with a compatible Battery Management System (BMS) or Intelligent Battery Sensor (IBS). This ensures that all relevant sensors and electrical components are reset and subjected to a 'memory test' which ensures compatibility of the replacement battery.

Available from:

BATTERY CARE & MAINTENANCE

TESTING

Standard battery testing equipment should not be used to test Stop Start batteries. **Century SiS ACTIVE batteries** are designed to operate in a partial state-of-charge. Using a tester configured for conventional batteries will not provide an accurate test result.

CHARGING

For optimum performance ensure the battery is maintained in a fully charged condition.

Always read the manufacturer's instructions before attempting to charge a battery and ensure you use a good quality, Australian approved battery charger. The battery type and the internal technologies will determine which type of charger is required.

The following should be used as a guide when charging **Century SiS ACTIVE batteries**.

TYPE (SiS)	RECHARGE IF OCV IS BELOW	MAXIMUM RECHARGE VOLTAGE (25°C)
AGM (DIN)	12.50	14.5V
EFB (DIN)	12.50	14.4V
EFB (JIS)	12.40	14.4V

RECYCLING

Century SiS ACTIVE batteries are 98% recyclable. Used batteries should not be discarded with household waste. Visit **www.recyclemybattery.com.au** or call **1300 650 702** to find your nearest CenturyYuasa approved Battery Recycling Centre.

Each battery returned is recycled and the components reclaimed for use in the manufacture of other products such as fertilisers, detergents and plastic bins.

Battery Recycling Centre
CenturyYuasa

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FOR STOP START SYSTEMS

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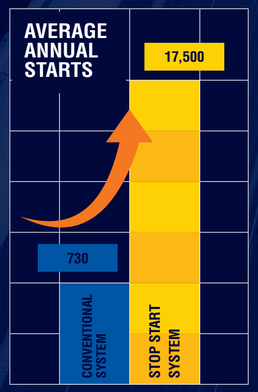
STOP START V's CONVENTIONAL BATTERIES

In constant Stop Start environments such as those experienced in city driving, a Stop Start vehicle may stop and start at least once or twice each kilometre.

This places extreme demands on a battery which must be able to cycle constantly and start the vehicle, even when in a partial state of charge.

In vehicles fitted with Stop Start systems, the battery must be able to handle the rigours associated with constant Stop Start demands, rapid recharging and the power requirements needed to run electrical accessories whilst the engine is switched off. The battery must also deliver the necessary cranking capacity to start the vehicle in a fraction of a second when the brake is released or the accelerator depressed.

Conventional batteries are not designed to handle the cycling requirements of Stop Start systems. In a conventional system the battery operates in a close to full state of charge and starts the vehicle two or three times per day. The capacity used to start the engine is replaced by the alternator during the duration of the journey. The battery is not subjected to constant cycling or required to operate in a partial state of charge. Using a conventional battery in a Stop Start system could potentially damage the vehicles electrical system and lead to premature battery failure.



CONVENTIONAL SYSTEM	STOP START SYSTEM
Starts vehicle 2 to 3 times per day	Starts vehicle every 1 to 2 kilometres
730 average annual starts	17,500 average annual starts
Delivers 263,000 watt seconds of energy	Delivers 487.5 million watt seconds of energy
Minimal cycling required	Battery is constantly required to cycle
Accessories draw from a fully charged battery	Accessories draw from battery when engine is off
Battery maintained in a near to full state of charge	Battery operates in a partial state of charge
Battery is recharged overtime during the journey	Battery has to recharge rapidly in between engine off modes

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Only Stop Start compatible batteries should be used in vehicles with Stop Start systems. Always replace the battery with a like for like EFB or AGM Stop Start battery.

Century SiS ACTIVE batteries are specially designed to satisfy the performance, fuel saving and CO_2 reducing benefits of Stop Start systems.

The range incorporates innovative design features and advanced raw materials to provide the cycling performance to cope with frequent discharge and recharge cycles, high charge acceptance for rapid recharge requirements in between engine off modes and the extra power to run on board electrics whilst the engine is switched off.

Century SiS ACTIVE batteries are also suitable for use in vehicles which do not incorporate Stop Start technology as they deliver improved starting power and enhanced cycling capabilities.

Century SiS ACTIVE AGM Range

A range of premium batteries incorporating Absorbed Glass Mat technology (AGM) for vehicles fitted with advanced Stop Start systems. These include Idle Stop Start, Regenerative Braking, Voltage Control and other intelligent technologies designed to aid the reduction of carbon emissions and increase fuel efficiency.

The advanced AGM technology, suspends liquid electrolyte in highly porous glass fleece separators. These separators act as a sponge like material, absorbing the liquid electrolyte and exerting superior contact with the active material in the battery plates. This combines to deliver superior starting power, extreme cycle life, deep discharge capabilities and up to 3 times higher cycling endurance*.

Century SiS ACTIVE AGM batteries are ideal for use in Stop Start applications as they deliver a very high current flow in a relatively short time frame and can support electrical systems with large parasitic drains even when in a partial state of charge.

They are also suitable for use in standard high performance and luxury vehicles with high electrical loads.

Item ID	Battery Type	CCA (-18˚C)	RC (20mins)	Ah (C20)	Polarity	Terminal Type	L (mm)	W (mm)	H (mm)	Warranty^ (Months)
106104	DIN53LH MF AGM	680	100	60	C	Std	242	175	190	24
106105	DIN65LH MF AGM	760	120	70	C	Std	278	175	190	24
106106	DIN75LH MF AGM	800	140	80	C	Std	315	175	190	24
106107	DIN92L MF AGM	850	160	95	C	Std	353	275	190	24

*Compared to conventional flooded batteries ^ Conditions apply refer to individual warranty statements affixed to each battery.

SiS ACTIVE EFB Range

A range of Enhanced Flooded Batteries (EFB) designed to aid the reduction of CO_2 emissions and fuel consumption in vehicles fitted with standard Stop Start systems.

Century EFB SiS ACTIVE batteries incorporate porous fibre materials and thicker battery plates for superior performance and longer life. The specialised low pressure contact material on the battery plates helps to retain active material and delivers the enhanced cycling capabilities demanded by Stop Start applications.

Extremely durable grids help prevent against plate growth whilst denser active materials incorporating fine carbon blends deliver up to 15% more cranking performance and up to 2 x higher cycling endurance than conventional batteries.

The SiS ACTIVE EFB range includes DIN style maintenance free batteries for popular European vehicles plus low maintenance flooded batteries for Asian vehicles.

SiS ACTIVE EFB DIN Range

Item ID	Battery Type	CCA (-18˚C)	RC (20mins)	Ah (C20)	Polarity	Terminal Type	L (mm)	W (mm)	H (mm)	Warranty^ (Months)
106108	DIN65L MF EFB	590	120	70	C	Std	278	175	175	24
106109	DIN75L MF EFB	700	135	75	C	Std	315	175	175	24

SiS ACTIVE EFB JIS Range

Item ID	Battery Type	CCA (-18˚C)	RC (20mins)	Ah (C20)	Polarity	Terminal Type	L (mm)	W (mm)	H (mm)	TH	Warranty^ (Months)
106100	Q85	650	112	67	C	Std	232	173	200	225	18
106103	S85	760	127	77	C	Std	260	173	200	225	18
106101	T110	810	155	80	C	Std	303	173	200	225	18

^Conditions apply refer to individual warranty statements affixed to each battery.

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